



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,628	10/01/2001	Chin-Yang Chen	NAUP0384USA	2279
27765	7590	04/01/2004	EXAMINER	
NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE) P.O. BOX 506 MERRIFIELD, VA 22116			WEISS, HOWARD	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/682,628	Applicant(s) CHEN, CHIN-YANG	
	Examiner Howard Weiss	Art Unit 2814	<i>HW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-19 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: NAUP0384USA

Filing Date: 10/1/01

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Chen

Examiner: Howard Weiss

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4 to 6, 8, 9, 11, 12, 14 to 16, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Cutter et al. (U.S. Patent No. 6,069,064).

Cutter et al. show all aspects of the instant invention (e.g. Figure 3F) including:

- a polysilicon conductive bottom electrode **312** set on an isolation layer **308** of a semiconductor wafer **324** and protruding from the surface of the isolation layer (Column 3 Lines 63 to 75)
- a dielectric layer **310** made of ONO (Column 4 Lines 1 to 8)
- a metal top electrode **314** set on the surface of the isolation layer and covering the surface of the dielectric layer

As to the grounds of rejection under section 103(a), it would be obvious to dope the polysilicon layer to further increase the conductivity and the speed of the programming. Cutter et al. also teach that amorphous silicon and polysilicon are known equivalents in the art (Column 4 Line 2). Therefor, it would have been obvious for one of ordinary skill in the art to substitute doped amorphous silicon for doped polysilicon.

4. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cutter et al. and Go et al. (U.S. Patent No. 5,592,016).

McCollum et al. show most aspects of the instant invention (Paragraph 3) except for the SOI substrate. Go et al. teach (e.g. Figure 14) is common and, therefore obvious, to one of ordinary skill in the art to form anti-fuse structures **210** on SOI substrates **12, 14**.

5. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cutter et al. and Cutter et al. (U.S. Patent No. 6,154,410 and hereinafter Cutter '410).

Cutter et al. show most aspects of the instant invention (Paragraph 3) except for the silicon conductive layer made of doped polysilicon and the surface of the silicon conductive layer having HSG structures. Cutter '410 teach (e.g. Figure 3) to use polysilicon layer having HSG structures **22** in anti-fuse **40** to increase programming speed (Column 3 Lines 48 to 59). It would have been obvious to a person of ordinary skill in the art at the time of invention to use doped polysilicon layer having HSG structures as taught by Cutter '410 in the anti-fuse of Cutter et al. to increase programming speed.

Response to Arguments

6. Applicant's arguments with respect to Claims 1 to 9 and 11 to 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 872-9306**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Art Unit: 2814

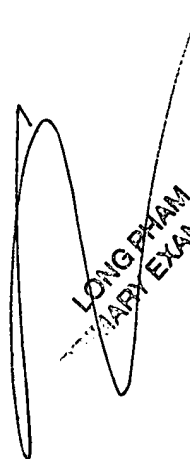
Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 530	thru 3/22/04
Other Documentation: none	
Electronic Database(s): EAST	thru 3/22/04

HW/hw
22 March 2004

Howard Weiss
Examiner
Art Unit 2814


LONG BUI
PRIMARY EXAMINER